ANALYSIS OF ANTHROPOMETRIC INDICATORS OF SCHOOL CHILDREN

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ABSTRACT

The physical development of school-age children is one of the most important indicators of population health. Systematic monitoring of the growth patterns of children and adolescents is of great importance in raising a healthy generation and developing preventive medicine. The aim of the study is to analyze the age-related dynamics of the main anthropometric indicators of schoolchildren (boys) aged 7 to 18 years, such as height, body weight, body mass index (BMI), head and chest circumference, and identify critical periods of growth. The study used anthropometric measurement methods and methods of mathematical and statistical analysis of the results obtained.

The urgency of the problem. In recent decades, significant transformations have been observed in the physical development of schoolchildren around the world, and in our country in particular. On the one hand, as a result of urbanization and economic growth, children reach puberty earlier (acceleration), on the other hand, as a result of inactivity (hypodynamia), unhealthy diet, and dependence on digital technologies, problems of lagging behind in physical development (deceleration) or weight gain are emerging. Therefore, regular analysis of anthropometric indicators of schoolchildren by age and gender requires updating modern growth norms (standards)

The purpose of the study: To study the state of physical development of the students, anthropometric height, weight, body mass index, head circumference, and chest circumference measurements were taken.

Materials and methods of the study: Standing height was measured using a 2 m tall wooden measuring tape with 0.5 cm increments. Height was measured in accordance with the established requirements. Body weight was measured using a medical scale capable of lifting up to 120 kg. Weight was measured in the morning on an empty stomach, without outer clothing and shoes. A 1.5 m long centimeter tape with mm graduations was used to measure chest and head circumference.

The results obtained based on the analysis of anthropometric indicators showed that the shortest students were 1.0 m tall, and the tallest were 1.86 m. When analyzing the body mass index, it was found that there was a lack of body mass among primary school students. This indicator was especially low among girls.

16.0% of the children studied were found to be underweight. This figure was 15.3% among boys and 17.0% among girls. Children with excess body weight were 7.5% among boys and 6.5% among girls. Obesity was detected in 5 boys (0.8%) and 2 girls (0.5%) respectively. No statistically significant differences were found between the sexes in these indicators. Analysis of the body mass index by age group shows that this index increases with age. It should be noted that with age, the proportion of those with underweight decreases and those with normal body weight increases. These results indicate the need to pay special attention to the diet and nutrition of younger schoolchildren.

During schooling (7–18 years), the average height of boys increased by 48.5 cm from 125.0 cm to 173.5 cm, and the weight increased by 42.8 kg from 25.2 kg to 68.0 kg. The most active stages of physical growth were observed, with growth spurts occurring between the ages of 9–10 and 12–13. The BMI index at 18 years of age was 22.6 kg/m^2. The head circumference was 51.1 cm on average for first-grade boys and 49.4 cm for girls. Among 18-year-old students, this indicator was 56.0 cm and 58.3 cm for boys and girls, respectively.

Conclusion. The growth spurts in children and adolescents occurred at the ages of 9–10 and 12–13, and the Body Mass Index at the age of 18 was 22.6 kg/m^2. The results obtained reflect not only the dynamics of anthropometric indicators of children and adolescents. The most reliable criteria for the correct distribution of physical education loads for students, the organization of a high-quality diet, and compliance with school hygiene requirements are the dimensions of desks and classroom conditions.

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